

What is claimed is:

1. A transformer, comprising a coil portion having a plurality of windings, and a plurality of cores arranged to sandwich the coil portion from aligning directions of the windings,

wherein the windings includes ring-like portions formed by winding a flat-type wire like a ring to overlap each other; both end portions of the flat-type wire are led from the ring-like portions respectively;

the plurality of windings and the plurality of cores are arranged along the overlapped direction of the flat-type wire;

a projected portion is formed on a first core; the ring-like portions are positioned such that the ring-like portions are fitted on an outer side of the projected portion;

a flat surface portion of a second core is positioned to oppose to the projected portion;

a gap is formed between the flat surface portion and a top end portion of the projected portion, and

the windings are positioned at positions except a position that surrounds the gap.

2. A transformer according to claim 1, wherein inclined surfaces are formed on the top end portion of the projected portion so that a sectional area of the projected portion is set at the top end portion to be reduced gradually toward a top end surface.
3. A transformer according to claim 1, wherein the end portions form leading terminals of the windings, and a width between leading terminals of primary windings and a width between leading terminals of secondary windings are differentiated.
4. A transformer according to claim 1, wherein two outer leg portions, for covering a part of the coil portion from an outer periphery side, positioned mutually on opposite sides to put the coil portion therebetween, are provided to the first core, and mutually-opposing surfaces of the two outer leg portions are formed straightly in parallel.